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## WHAT IS CLAIMED IS:

A printed wiring substrate having a built-in capacitor on which an IC chip is mounted, characterized in that:

the capacitor comprises:

a pair of electrodes or electrode groups; and

a plurality of capacitor terminals, wherein the respective capacitor terminals are electrically connected to one or the other of the paired electrodes or electrode groups;

the printed wiring substrate comprises a plurality of substrate terminals;

the IC chip comprises a plurality of connection-to-capacitor terminals and a plurality of connection-to-substrate terminals;

the plurality of capacitor terminals of the capacitor are respectively flip-chip-bonded to a plurality of connection-to-capacitor terminals of the IC chip; and

the plurality of substrate terminals of the printed wiring substrate are respectively flip-chip-bonded to a plurality of connection-to-substrate terminals of the IC chip.

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The printed wiring substrate according to claim, wherein the IC-chip-carrying printed wiring substrate is a CSP adapted for mounting an IC chip.

4. A printed wiring substrate having a built-in capacitor for mounting an IC chip or IC-chip-carrying printed wiring substrate having a plurality of connection-to-capacitor terminals and a plurality of connection-to-substrate terminals, characterized in that:

the capacitor comprises:

a pair of electrodes or electrode groups; and

a plurality of capacitor terminals capable of being respectively flipchip-bonded or bonded in a connection-face-to-connection-face manner to a plurality of connection-to-capacitor terminals of the IC chip or IC-chipcarrying printed wiring substrate, wherein the respective capacitor terminals are electrically connected to one or the other of the paired electrodes or electrode groups; and

the printed wiring substrate comprises a plurality of substrate terminals capable of being respectively flip-chip-bonded or bonded in a connection-face-to-connection-face manner to a plurality of connection-to-substrate terminals of the IC chip or IC-chip-carrying printed wiring substrate.

The printed wiring substrate according to claim 4, wherein the capacitor and the printed wiring substrate are fixed together with an insulating resin.

6. The printed wiring substrate according to claim 4, characterized in that:

the capacitor comprises a first capacitor main-surface, on which the plurality of capacitor terminals are formed;

the printed wiring substrate comprises a first substrate main-surface, on which the plurality of substrate terminals are formed; and

the plurality of capacitor terminals and the plurality of substrate terminals are substantially coplanar.

The printed wiring substrate according to claim 4, characterized in that:

the printed wiring substrate comprises:

a capacitor accommodation cavity for accommodating the capacitor;

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a cavity periphery region located around the capacitor accommodation cavity; and

the plurality of substrate terminals are formed in the cavity periphery region.





The printed wiring substrate according to claim A, characterized in that:

the printed wiring substrate comprises a capacitor accommodation cavity for accommodating the capacitor, said capacitor being disposed in the capacitor accommodation cavity; and

the capacitor accommodation cavity comprises a capacitor position restriction portion which abuts the capacitor disposed therein so as to restrict a position of the capacitor in a depth direction of the capacitor accommodation cavity.

The printed wiring substrate according to claim A, characterized in that:

the printed wiring substrate assumes a substantially plate shape having a first substrate main-surface and a second substrate main-surface and comprises:

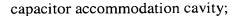
a closed-bottomed capacitor accommodation cavity which is sunk below the first substrate main-surface toward the second substrate mainsurface and is adapted to accommodate the capacitor;

a plurality of second-surface substrate terminals formed on the second substrate main-surface; and

a plurality of connection lines extending from some of the plurality of second-surface substrate terminals to a bottom surface of the closed-bottomed



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the capacitor is disposed in the closed-bottomed capacitor

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a first capacitor main-surface;

a second capacitor main-surface substantially parallel to the first capacitor main-surface; and

a plurality of second-surface capacitor terminals formed on the second capacitor main-surface, wherein the respective second-surface capacitor terminals are electrically connected to one or the other of the paired electrodes or electrode groups;

the plurality of substrate terminals are formed on the first substrate main-surface;

the plurality of capacitor terminals are formed on the first capacitor main-surface; and

the plurality of second-surface capacitor terminals are connected to corresponding connection lines which extend to the bottom surface of the closed-bottomed capacitor accommodation cavity.

The wiring substrate according to claim A, characterized in that:

the printed wiring substrate assumes a substantially plate shape having a first substrate main-surface and a second substrate main-surface and



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a through capacitor accommodation cavity which extends through the printed wiring substrate between the first substrate main-surface and the second substrate main-surface and is adapted to accommodate the capacitor; and

a plurality of second-surface substrate terminals formed on the second substrate main-surface;

the capacitor is disposed in the through capacitor accommodation cavity and comprises:

a first capacitor main-surface;

a second capacitor main-surface substantially parallel to the first capacitor main-surface; and

a plurality of second-surface capacitor terminals formed on the second capacitor main-surface, wherein the respective second-surface capacitor terminals are electrically connected to one or the other of the paired electrodes or electrode groups;

the plurality of substrate terminals are formed on the first substrate main-surface; and

the plurality of capacitor terminals are formed on the first capacitor main-surface.

The printed wiring substrate according to claim 8, wherein the plurality of second-surface capacitor terminals are disposed at intervals greater than those of the plurality of capacitor terminals.

The printed wiring substrate according to claim 10, wherein the plurality of second-surface capacitor terminals are disposed at intervals greater than those of the plurality of capacitor terminals.

The printed wiring substrate according to claim, wherein the printed wiring substrate serves as an interposer between the IC-chip-carrying printed wiring substrate and another printed wiring substrate.

chip-carrying printed wiring substrate, said IC chip or IC-chip-carrying printed wiring substrate comprising a plurality of connection-to-capacitor terminals for connection to a capacitor and a plurality of connection-to-substrate terminals for connection to the printed wiring substrate, the printed wiring substrate comprising a plurality of substrate terminals capable of being respectively flip-chip-bonded or bonded in a connection-face-to-connection-face manner to the plurality of connection-to-substrate terminals of the IC chip or IC-chip-carrying printed wiring substrate.

15. A capacitor for connection to an IC chip or IC-chip-carrying printed wiring substrate, said IC chip or IC-chip-carrying printed wiring substrate comprising a plurality of connection-to-capacitor terminals for

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A printed wiring substrate having a built-in capacitor on which an IC-chip carrying printed wiring substrate is mounted, characterized in that:

the capacitor comprises:

a pair of electrodes or electrode groups; and

a plurality of capacitor terminals, wherein the respective capacitor terminals are electrically connected to one or the other of the paired electrodes or electrode groups;

the printed wiring substrate comprises a plurality of substrate terminals;

the IC chip-carrying printed wiring circuit comprises a plurality of connection-to-capacitor terminals and a plurality of connection-to-substrate terminals;

the plurality of capacitor terminals of the capacitor are respectively bonded in a connection-face-to-connection-face manner to a plurality of connection-to-capacitor terminals of the IC-chip carrying printed wiring substrate; and

the plurality of substrate terminals of the printed wiring substrate are respectively bonded in a connection-face-to-connection-face manner to a plurality of connection-to-substrate terminals of the IC-chip-carrying printed wiring substrate.

connection to the capacitor and a plurality of connection-to-substrate terminals for connection to a printed wiring substrate, the capacitor comprising:

a pair of electrodes or electrode groups; and

a plurality of capacitor terminals capable of being respectively flip-chip-bonded or bonded in a connection-face-to-connection-face manner to the plurality of connection-to-capacitor terminals of the IC chip or IC-chip-carrying printed wiring substrate, wherein the respective capacitor terminals are electrically connected to one or the other of the paired electrodes or electrode groups.

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